

REMARKS

Applicant requests reconsideration and allowance of the present application in view of the foregoing amendments and the following remarks.

Claims 1-16 are pending in the present application. Claims 1 and 9, the independent claims, are amended herein to even more clearly recite various features of the invention. Support for the amendments may be found in the specification at least at page 16, line 26 through page 18, line 27. Applicant respectfully submits that no new matter has been added.

The Examiner has disapproved the drawing changes proposed in the Request for Approval of Drawing Amendments filed March 4, 2003. Applicant, therefore, submits herewith corrected formal drawings incorporating the changes proposed in the Request for Approval filed March 4, 2003, as well as deleting reference numerals 102a-102c from Fig. 14B. Applicant submits that the drawings are now in condition for allowance, and requests reconsideration and withdrawal of the objection to the drawings.

Claims 1-16 have been rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, the Examiner maintains that the use of the term "OFF voltage" in Claims 1 and 9 is repugnant to the usual meaning of the term. Claims 1 and 9 are amended herein to read that a --second voltage--, rather than an "OFF voltage," is applied to the read transistors in each storage period, and a --fourth voltage--, rather than an "OFF voltage," is applied to the reset transistors in each storage period. Further, the relation between the levels of the voltages is stated in an even more concise

manner. Applicant submits that the §112 rejection is now moot, and respectfully requests its withdrawal.

Claims 1-3, 5, 8-11, 13, and 16 have been rejected under 35 U.S.C. §103(a) as being obvious over U.S. Patent No. 5,869,837 (Huang) in view of U.S. Patent No. 5,852,296 (Tsukamoto, et al.). Claims 4, 6, 12, and 14 have been rejected under §103(a) as being obvious over Huang in view of Tsukamoto, et al., and further in view of U.S. Patent No. 5,391,881 (Jeuch, et al.). Claims 7 and 15 have been rejected under 35 U.S.C. §103(a) as being obvious over Huang in view of Tsukamoto, et al., and further in view of U.S. Patent No. 6,075,248 (Jeromin, et al.). These rejections are respectfully traversed.

Independent Claim 1 of the present invention, as amended, recites an electromagnetic wave detector including conversion elements for converting incident electromagnetic waves or radiations into an electric charge, storage capacitors for storing the electric charge produced by the conversion elements, thin film read transistors connected respectively to the corresponding storage capacitors, and thin film reset transistors connected respectively to the corresponding storage capacitors.

In the wave detector of Claim 1, each of the read transistors has a threshold voltage and a gate to which first and second voltages are applied respectively in readout and storage periods, and each of the reset transistors has a threshold voltage and a gate to which third and fourth voltages are applied respectively in reset and storage periods. A gate potential between the read transistors and a gate potential between the reset transistors can be independently controlled, and the difference between the fourth voltage and the threshold voltage of the reset transistors is smaller than the difference between the second voltage and the threshold voltage of the read transistors.

Independent Claim 9 of the present invention, as amended, recites an electromagnetic wave detector including conversion elements for converting incident electromagnetic waves or radiations into an electric charge, storage capacitors for storing the electric charge produced by the conversion elements, and thin film reset transistors connected respectively to the corresponding storage capacitors and each having a gate to which third and fourth voltages are applied respectively in reset and storage periods. In the wave detector according to Claim 9, any excessive electric charge is discharged by way of the thin film reset transistors in each storage period.

The primary citation to Huang, which relates to a radiation imaging panel, is said to teach conversion elements, storage capacitors, thin film read transistors, and thin film reset transistors. According to the patent, the gate of a thin film read transistor is connected in common to the gate of a thin film reset transistor in a next stage. Therefore, the gate voltages cannot be controlled independently.

Applicant submits that Huang fails to teach or suggest at least the features of the invention that each of thin film read transistors has a threshold voltage and a gate to which first and second voltages are applied respectively in readout and storage periods, and each of thin film reset transistors has a threshold voltage and a gate to which third and fourth voltages are applied respectively in reset and storage periods, wherein a gate potential between the read transistors and a gate potential between the reset transistors can be independently controlled, and the difference between the fourth voltage and the threshold voltage of the reset transistors is smaller than the difference between the second voltage and the threshold voltage of the read transistors.

The secondary citation to Tsukamoto, et al. relates to an x-ray image apparatus. Applicant submits that, assuming that it were proper to combine this patent with Huang in the manner suggested in the Office Action, the proposed combination would still fail to remedy the deficiency of Huang discussed above.

Further, Applicant submits that neither Huang nor Tsukamoto, et al., whether taken alone or in combination, teaches or suggests at least the feature of the invention that thin film reset transistors are connected respectively to corresponding storage capacitors, each such reset transistor having a gate to which third and fourth voltages are applied respectively in reset and storage periods, as recited in Claim 9.

Applicant moreover submits that, as for Jeuch, et al. and Jeromin, et al., whether taken individually or in any of the combinations with Huang and Tsukamoto, et al. proposed in the Office Action, these tertiary citations also do not remedy the above-discussed deficiencies.

Therefore, it is submitted that independent Claims 1 and 9 patentably distinguish the invention over all of the cited art. Accordingly, reconsideration and withdrawal of the §103 rejections are requested.


Applicant submits that the independent claims patentably define the invention over the citations of record. Further, the dependent claims should also be allowable for the same reasons that the base claims from which they depend are allowable, and further due to the additional features that they recite. Individual consideration of each of the dependent claims is respectfully requested.

Applicant believes that the present Amendment is responsive to each of the points raised by the Examiner in the Official Action and submits that the present

application is in allowable form. Favorable consideration of the claims and passage to issue of the present application at the Examiner's earliest convenience are solicited.

Applicant's undersigned attorney may be reached in our Washington, D.C. office by telephone at (202) 530-1010. All correspondence should continue to be directed to our below-listed address.

Respectfully submitted,



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